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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,316	06/28/2004	Robert Andrew Alford	TS6324 US	9866

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EXAMINER
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ABOAGYE, MICHAEL

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/500,316

Applicant(s)

ALFORD ET AL.

Examiner

Michael Aboagye

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04/13/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-12, 16, 17 and 22-24 is/are allowed.
- 6) ☒ Claim(s) 1-6, 13-15 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites, "the tubular ends" at the end of line 2, "the wall" at the end of line 7, "the tubular end" on line 8, "the tubular segment" at the end of line 9 and "the heated tubular ends" at the beginning of line 11.

There is insufficient antecedent basis for these limitations in the claim.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (US Patent No. 4736084) in view of Brennan et al. (US Patent No. 5347101).

Moe teaches a method for joining two tubular elements (1,2) by forge welding, comprising: arranging the tubular ends that are to be joined at a selected distance from each other in a space by gripping means, providing a flushing fluid mixture; heating each tubular end within said space by means of high frequency electrical heating source (11) through two pairs of contact (6,7 and 8,9) arranged by clamping at circumferentially spaced intervals and diametrically opposite position against the wall of each tubular end such that the contacts transmit a high frequency electrical current through a substantially circumferential direction of tubular segment between the electrical contact and pressing the tubular ends towards each other until a forge weld is formed between the heated tubular ends( abstract, figures 1and 2, and column 2, line 9 – column4, line 21).

Moe does not teach using at least three electrodes as the means of heating the tubular elements to joined by forging.

However Brennan et al. teaches a welding method of welding offshore pipelines (5) by heating the pipe segments with high frequency electrical heating source through at least

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three pairs of electrodes (50) that are pressed on the circumferentially boundary defined by the pipe segments; wherein the electrodes are mounted approximately 60° apart from each other in order to ensure uniform heating (see Brennan et al., figure 2, abstract, and column 1, line 61-column 3, line 67). Attention is drawn to the fact that the arrangement of the welding electrodes as disclosed by Brennan et al., though does not expressly indicate angular intervals of substantially 90° and 120°, approximately 60° angular interval between the electrodes as disclosed Brennan et al. in its broadest interpretation meets the limitation set forth in claims 4 and 6, furthermore the 60° angular arrangement of electrodes is said to be one of several embodiments and does not limit the scope of the disclosure.

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to have modified the forging method of Moe to include at least three pairs of electrode circumferentially spaced intervals in view of the teachings of Brennan et al. in order to ensure uniform heating (see Brennan et al., abstract, and column 3, lines 5- 19).

5. Claims 13 - 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (US Patent No. 4736084) in view of Brennan et al. (US Patent No. 5347101) as applied to claim 1 above, and further in view of Flood et al. (US Patent No. 5686002).

Moe in view of Brennan et al. disclose and /or suggest all the elements of claim 1 but do not expressly teach a flushing fluid a mixture comprising less than 25% by volume of a reducing fluid and more than 75% by volume of a substantially inert gas nor

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between 2 and 15% by volume of reducing fluid and between 85 and 98% by volume of a substantially inert gas.

However Flood et al. teaches a method of welding wherein a blend of 95% argon (inert gas) and 5% hydrogen gas (reducing gas) mixture is provided as a flushing gas to provide a protective atmosphere in the weld zone to protect the molten metal from reacting with oxygen in or other impurities or contaminants contained in the surrounding atmosphere (Flood et al., abstract, column 6, line 37-57)

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to have provided in the forging method of Moe as modified by Brennan et al. a blend of 95% argon (inert gas) and 5% hydrogen gas (reducing gas) flushing gas mixture in view of the teachings of Flood et al. in order to provide a protective atmosphere in the weld zone to protect the molten metal from reacting with oxygen in or other impurities or contaminants contained in the surrounding atmosphere (Flood et al., abstract, column 6, line 37-57).

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moe (US Patent No. 4736084) in view of Brennan et al. (US Patent No. 5347101) as applied to claim 1 above, and further in view of Schaps et al. (US Patent No. 5652389).

Moe in view of Brennan et al. disclose and /or suggest all the elements of claim 1 but do not expressly teach quality inspection of the forge weld formed between the tubular elements by EMAT.

However, Schaps et al. teaches an inspection method of shaped elements joined by inertial welding using EMAT, wherein electromagnetic acoustic transducer means

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generate a pulse inspection signals and inspection signals to enable the detection of flaws or potential defects in the welded joint (see Schaps et al. abstract, figures 1– 4, and column 2, line 5-25)

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to have provided in the forging method of Moe as modified by Brennan et al. a EMAT inspection means in view of the teachings of Schaps et al. to enable detection of flaws or potential defects in the welded joint (see Schaps et al. abstract, and column 2, line 5 –25).

#### ***Allowable Subject Matter***

7. Claims 7-12, 16, 17 and 22-24 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The improvement in the claims 7-12, comprises connecting tubulars that are irregular in shape and multibore each comprising an enveloping pipe and one or more partitioning walls, which divide the interior of the enveloping pipe into at least two semi-cylindrical segments and multibores formed by pipe bundles having the walls of the adjacent pipes in electrical contact with each other.

The improvement in claims 16,17 and 22-24 comprises a flushing mixture made of a liquid or solid reducing agent which is painted or sprayed at the tubular ends and an inert gas is injected into said space, whereupon the reducing agent is at least partly evaporated when the tubular ends are heated and the evaporated reducing agent is mixed with the injected inert gas to form in-situ a flushing gas mixture comprising less than 25% by volume of evaporated reducing agent and more than 75% by volume of a

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substantially inert gas; wherein the liquid or solid reducing agent comprises a cleaning liquid, such as hydrochloric acid, and a reducing agent, such as hydrogen peroxide, borax powder and/or an alkaline or beryllium hydride.

### ***Response to Arguments***

8. The examiner acknowledges the applicants' the applicants' amendment received by the USPTO on April 13, 2006. New claims 22-24 have been added and therefore, claims 1-24 are presently under consideration in this application.

Applicant's arguments filed April 13, 2006 regarding claims 1-6, 13-15 and 18-21 have been fully considered but they are not persuasive. The applicant has characterized the methods of Moe and Brennan et al. as not complementary of each other. The examiner maintains the fact that Moe teaches the subject matter of the claimed invention. The argument regarding the gap in the methodology of Moe is not pertinent to the claims. The examiner takes note of the fact that Brennan et al. teaches arc welding but not resistance welding. However these techniques are analogous welding techniques in the same art. What Brennan et al. provides, is a prior art teaching of an a plurality of welding heads or electrodes arranged in angular mode at intervals substantially 90° and 120° against the tubular wall of pipes to be welded. The examiner maintains the fact, one of the general principles of welding is to ensure uniform heating at the joining interface to control defects such as cracking. The mode of arrangement of the electrodes as described by Brennan et al. not only lessens the time to complete welding the entire circumference of the pipes, it may ensure uniform local heating. The applicant assert that the process of Moe does not require intense



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heating. The examiner respectfully disagrees. Moe column 2, lines 28-45 teaches “welding can be completed for very large pipes within approximately 1 minute without normalizing”. These limitations require the embodiment of a local and an intense heating in order to avoid normalizing which is a slow and medium heating process.

Regarding claims 13-15, the Flood et al. reference is not require to show plurality of electrodes, since those limitations have been met by Brennan et al.. Flood et al. reference is applied to meet the composition requirement of the flushing medium as set forth in claims 13-15 wherein a blend of 95% argon (inert gas) and 5% hydrogen gas (reducing gas) mixture is provided as a flushing gas to provide a protective atmosphere in the weld zone to protect the molten metal from reacting with oxygen in or other impurities or contaminants contained in the surrounding atmosphere (Flood et al., abstract, column 6, line 37-57).

The rejections of claims 1-6, 13-15 and 18-21 under 35 U.S.C. 103(a) as said forth in this action is deemed proper.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art unit 1725

09/14/2006

KEVIN KERNS  
PRIMARY EXAMINER  
Kevin Kerns 9/15/06